WHAT IS CLAIMED IS:

1   1.   A machine-implemented method of encoding a target image of a
2   scene captured at a first image plane, comprising:
3   computing a transformation mapping at least three noncollinear points
4   substantially coplanar on a scene plane in the target image to corresponding
5   points in a references image of the scene captured at a second image plane
6   different from the first image plane;
7   identifying at least one point in the target image off the scene plane and at
8   least one corresponding point in the reference image;
9   estimating a motion between the target image and the reference image
10   based on the computed transformation and the identified corresponding off-scene-
11   plane points; and
12   encoding the target image based at least in part on the estimated motion.

1   2.   The method of claim 1, further comprising identifying the at least
2   three scene plane points in the target image and the at least three corresponding
3   scene plane points in the reference image.

1   3.   The method of claim 1, wherein estimating the motion comprises
2   defining single-parameter search spaces each relating points in the reference
3   image to respective points in the target image.

1   4.   The method of claim 3, wherein defining the single-parameter
2   search space comprises computing an epipole in the reference image based on the
3   computed transformation and the identified corresponding off-scene-plane points.

1   5.   The method of claim 4, wherein defining a respective single-
2   parameter search space comprises parameterizing an epipolar line extending
3   through the computed epipole in the reference image.

1   6.   The method of claim 5, wherein a respective single-parameter
2   search space is defined for each block of points in the target image.

1   7.   The method of claim 6, wherein a respective single-parameter
2   search space is defined by a parameterized epipolar line in the reference image

3 extending through the epipole and a point corresponding to a mapping of a given
4 point in the target image to a corresponding point in the reference image based on
5 the computed transformation.

1   8.   The method of claim 3, wherein estimating the motion comprises
2 dividing the target image into blocks of points and computing for each block a
3 respective motion vector representing motion between a target image block and a
4 reference image block.

1   9.   The method of claim 8, wherein each motion vector describes a one-
2 to-one mapping between a block of points in the target image and a block of
3 points in the reference image.

1   10.   The method of claim 1, wherein encoding the target image
2 comprises representing points of the target image in terms of the estimated
3 motion and motion compensation difference data representing intensity
4 adjustments to points of the reference image for reconstructing corresponding
5 points of the target image.

1   11.   An apparatus for encoding a target image of a scene captured at a
2 first image plane, comprising an encoder operable to:
3   compute a transformation mapping at least three noncollinear points
4 substantially coplanar on a scene plane in the target image to corresponding
5 points in a references image of the scene captured at a second image plane
6 different from the first image plane;
7   identify at least one point in the target image off the scene plane and at
8 least one corresponding point in the reference image;
9   estimate a motion between the target image and the reference image based
10 on the computed transformation and the identified corresponding off-scene-plane
11 points; and
12   encode the target image based at least in part on the estimated motion.

1   12.   The apparatus of claim 11, wherein the encoder is further operable
2 to identify the at least three scene plane points in the target image and the at least
3 three corresponding scene plane points in the reference image.

1   13.   The apparatus of claim 11, wherein the encoder is operable to
2   estimate the motion by defining single-parameter search spaces each relating
3   points in the reference image to respective points in the target image.

1   14.   The apparatus of claim 13, wherein the encoder is operable to
2   define the single-parameter search space by computing an epipole in the reference
3   image based on the computed transformation and the identified corresponding
4   off-scene-plane points.

1   15.   The apparatus of claim 14, wherein the encoder is operable to
2   define a respective single-parameter search space by parameterizing an epipolar
3   line extending through the computed epipole in the reference image.

1   16.   The apparatus of claim 15, wherein the encoder defines a respective
2   single-parameter search space for each block of points in the target image.

1   17.   The apparatus of claim 16, wherein a respective single-parameter
2   search space is defined by a parameterized epipolar line in the reference image
3   extending through the epipole and a point corresponding to a mapping of a given
4   point in the target image to a corresponding point in the reference image based on
5   the computed transformation.

1   18.   The apparatus of claim 13, wherein the encoder is operable to
2   estimate the motion by dividing the target image into blocks of points and
3   computing for each block a respective motion vector representing motion between
4   a target image block and a reference image block.

1   19.   The apparatus of claim 18, wherein each motion vector describes a
2   one-to-one mapping between a block of points in the target image and a block of
3   points in the reference image.

1   20.   The apparatus of claim 11, wherein the encoder is operable to
2   encode the target image by representing points of the target image in terms of the
3   estimated motion and motion compensation difference data representing intensity
4   adjustments to points of the reference image for reconstructing corresponding
5   points of the target image.

1   21.   A machine-readable medium storing machine-readable instructions
2   for causing a machine to:
3   compute a transformation mapping at least three noncollinear points
4   substantially coplanar on a scene plane in the target image to corresponding
5   points in a references image of the scene captured at a second image plane
6   different from the first image plane;
7   identify at least one point in the target image off the scene plane and at
8   least one corresponding point in the reference image;
9   estimate a motion between the target image and the reference image based
10   on the computed transformation and the identified corresponding off-scene-plane
11   points; and
12   encode the target image based at least in part on the estimated motion.

1   22.   The machine-readable medium of claim 22, wherein the machine-
2   readable instructions further cause the machine to identify the at least three scene
3   plane points in the target image and the at least three corresponding scene plane
4   points in the reference image.

1   23.   The machine-readable medium of claim 21, wherein the machine-
2   readable instructions cause the machine to estimate the motion by defining single-
3   parameter search spaces each relating points in the reference image to respective
4   points in the target image.

1   24.   The machine-readable medium of claim 23, wherein the machine-
2   readable instructions cause the machine to define the single-parameter search
3   space by computing an epipole in the reference image based on the computed
4   transformation and the identified corresponding off-scene-plane points.

1   25.   The machine-readable medium of claim 24, wherein the machine-
2   readable instructions cause the machine to define a respective single-parameter
3   search space by parameterizing an epipolar line extending through the computed
4   epipole in the reference image.

1   26.   The machine-readable medium of claim 25, wherein the machine-
2   readable instructions cause the machine to define a respective single-parameter
3   search space for each block of points in the target image.

1   27.   The machine-readable medium of claim 26, wherein a respective
2   single-parameter search space is defined by a parameterized epipolar line in the
3   reference image extending through the epipole and a point corresponding to a
4   mapping of a given point in the target image to a corresponding point in the
5   reference image based on the computed transformation.

1   28.   The machine-readable medium of claim 23, wherein the machine-
2   readable instructions cause the machine to estimate the motion by dividing the
3   target image into blocks of points and computing for each block a respective
4   motion vector representing motion between a target image block and a reference
5   image block.

1   29.   The machine-readable medium of claim 28, wherein each motion
2   vector describes a one-to-one mapping between a block of points in the target
3   image and a block of points in the reference image.

1   30.   The machine-readable medium of claim 21, wherein the machine-
2   readable instructions cause the machine to encode the target image by
3   representing points of the target image in terms of the estimated motion and
4   motion compensation difference data representing intensity adjustments to points
5   of the reference image for reconstructing corresponding points of the target image.